

Application No.: 10/730,525

Reply to Office Action mailed September 15, 2005 and Advisory Action mailed December 29, 2005

Response dated: February 15, 2006

AMENDMENTS TO THE CLAIMS

A list of claims follows, including those to be amended:

1. (Currently Amended) A process of polymerizing olefins comprising contacting, in a reactor:

- (a) ethylene and at least one comonomer selected from the group consisting of C₄ to C₈ alpha olefins; and
- (b) a supported catalyst system comprising a metallocene catalyst compound activated by methylaluminoxane, and a support material, the methylaluminoxane being present in the range of from 3 to 7.7 mmole methylaluminoxane per gram of support material, the metallocene being present in the range of from 0.04 to 0.1 mmole metallocene per gram of support material;

wherein the process produces a polyethylene ~~polymer~~ copolymer having a bulk density of at least 0.30 gram/cubic centimeter; and

wherein the support material is ~~selected from the group consisting of silica~~ having an average particle size ranging from 10 to 40 μ m, alumina, ~~silica-alumina, magnesium chloride, graphite, and mixtures thereof;~~ and

wherein the metallocene catalyst compound is a substituted bis-cyclopentadienyl zirconocene catalyst compound comprising at least one fluoride or fluorine containing leaving group.

2. (Original) The process of claim 1 wherein the polymerization process is a gas phase process.
3. (Original) The process of claim 1 wherein the polymerization process is a slurry process.

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4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Original) The process of claim 6 wherein the methylaluminoxane is present in an amount in the range of from 4 to 7.7 mmole methylaluminoxane per gram of support material.
8. (Original) The process of claim 7 wherein the methylaluminoxane is present in an amount in the range of from 5 to 6.5 mmole methylaluminoxane per gram of support material.
9. (Original) The process of claim 8 wherein the methylaluminoxane is present in an amount in the range of from 6 to 6.5 mmole methylaluminoxane per gram of support material.
10. (Cancelled)
11. Cancel
12. (Original) The process of claim 11 wherein the metallocene catalyst compound is present in an amount in the range of from 0.06 to 0.07 mmole metallocene per gram of support material.
13. Cancel
14. (Cancelled)
15. Cancel

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16. Cancel
17. (Original) The process of claim 1 wherein the polymer produced has a bulk density of at least 0.4 grams per cubic centimeter.
18. (Original) The process of claim 17 wherein the polymer produced has a bulk density of at least 0.48 grams per cubic centimeter.
19. (Original) The process of claim 1 wherein the metallocene catalyst compound is selected from the group consisting of: bis(1,3-methyl-n-butylcyclopentadienyl) zirconium difluoride; bis(n-propylcyclopentadienyl) zirconium difluoride; (tetramethyl cyclopentadienyl) (n-propyl cyclopentadienyl) zirconium difluoride; and (pentamethyl cyclopentadienyl) (n-propyl cyclopentadienyl) zirconium difluoride.
20. (Original) The process of claim 1 wherein an antistatic agent is absent or substantially absent from the catalyst composition.
21. (Original) The process of claim 20 wherein the support material has a surface area in the range of from 150 to 450 m²/gram.
22. (Original) The process of claim 20 wherein the support material has a pore volume in the range of from 1 to 2.5 cm³/gram.
23. Cancel
24. (Original) The process of claim 1 wherein an antistatic agent is present in the catalyst composition in an amount less than 4 % by weight of the catalyst composition.

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25. (Original) The process of claim 24 wherein the antistatic agent is present in the catalyst composition in an amount in the range of from 0 % to 2 % by weight of the catalyst composition.
26. (Original) The process of claim 1 wherein the support material has a surface area in the range of from 150 to 450 m²/gram.
27. (Original) The process of claim 26 wherein the support material has a surface area in the range of from 250 to 400 m²/gram.
28. (Original) The process of claim 27 wherein the support material has a surface area in the range of from 300 to 350 m²/gram.
29. (Original) The process of claim 1 wherein the support material has a pore volume in the range of from 1 to 2.5 cm³/gram.
30. (Original) The process of claim 29 wherein the support material has a pore volume in the range of from 1.25 to 2.0 cm³/gram.
31. (Original) The process of claim 30 wherein the support material has a pore volume in the range of from 1.5 to 1.75 cm³/gram.
32. Cancel.
33. Cancel.
34. (Original) The process of claim 33 wherein the support material has an average particle size of from 20 to 30 μm.
- 35.-74. (Cancelled)